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Vlerick Leuven Gent Management School

the Autonomous Management School of
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RESEARCH REPORT

THE ROLES OF BUSINESS CENTRES FOR NETWORKING

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December 2009

FLANDERS DISTRICT OF CREATIVITY

Flanders District of Creativity is the Flemish organization for **entrepreneurial creativity.** It was founded in 2004 by the Flemish Government as a non-profit organization and enjoys broad support. Flemish businesses, academia, and public institutions use Flanders DC as a platform for cooperation in the pursuit of a more creative Flanders region.

Creativity is the key ingredient in making companies more successful and in helping regional governments ensure a healthy economy with more jobs. Flanders DC inspires creativity and innovation:

1. by learning from the most **creative regions** in the world,
2. by igniting **creative sparks** in everyday life and business, and
3. by providing **research, practical business tools and business training,** in cooperation with the Flanders DC Knowledge Centre.

1. Districts of Creativity: Inspiration from the most creative regions

Responses to global challenges are best found within an international network of excellence. With the single aim of learning from the very best, Flanders DC aims to unite the most dynamic regions in the world within the 'Districts of Creativity' network. Every two years, Flanders DC convenes the Creativity World Forum, bringing together government leaders, entrepreneurs, and knowledge institutions to exchange ideas about how to tackle pressing economic problems and make their regions hotbeds for innovation and creativity.

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In addition to these research projects, the Flanders DC Knowledge Centre has also developed the following tools and training sessions:

- **Ondernemen.meerdan.ondernemen**, an online learning platform
- **Creativity Class** for young high-potentials
- **Flanders DC Fellows**, inspiring role models in business creativity

FLANDERS DC FELLOWS

- **Creativity Talks**, monthly seminars on business creativity and innovation
- **Innovix,** online innovation management game
- **Flanders DC Academic Seminars,** research seminars on business creativity and innovation
- **TeamScan**, online tool

TEAMSCAN

- **Web 2.0 Readiness Scan**
- **HR Toolbox**

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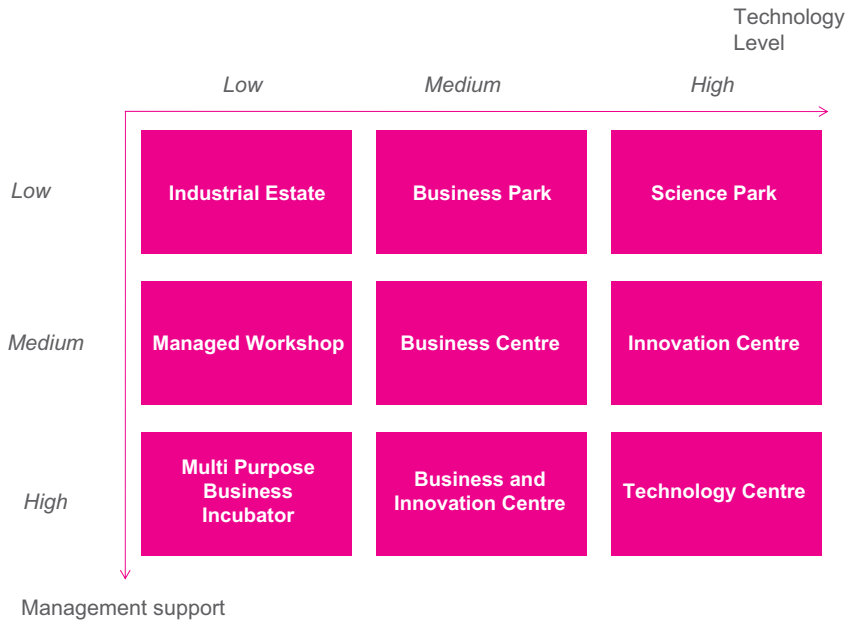
Introduction: the roles of business centres in networking

At the beginning of this research project, we carried out an extensive literature review on business centres and found that the academic literature hardly refers to business centres as such. The literature on incubation and incubators is, however, quite extensive, with researchers focusing on the activities that incubators engage in (Mian, 1996; Brooks, 1986; Kuratko and Lafollette, 1987; Autio and Klofsten, 1998), incubator performance (Udell, 1990; Mian, 1997), the function of the incubator within the environment (Bollingtoft and Ulhoi, 2005) and the performance/survival of incubatees (e.g. Colombo and Delmastro, 2002; Stuaret and Abetti, 1987). Grimaldi and Grandi (2005) state that the incubation concept "seeks an effective means to link technology, capital and know-how in order to leverage entrepreneurial talent, accelerate the development of new companies, and thus speed the exploitation of technology. Incubators assist emerging businesses by providing a variety of support services such as assistance in developing business and marketing plans, building management teams, obtaining capital, and access to a range of other more specialized professional services".
Given that the focus of this research is on business centres, it is important to position these business centres against other initiatives to stimulate networking activities. A report by the European Commission (2002) seeks to present an overview of different structures that support the growth of small firms and presents the following typology of business incubators (Figure 1):

Figure 1 Position of the business centre



Source: European Commission (2002)

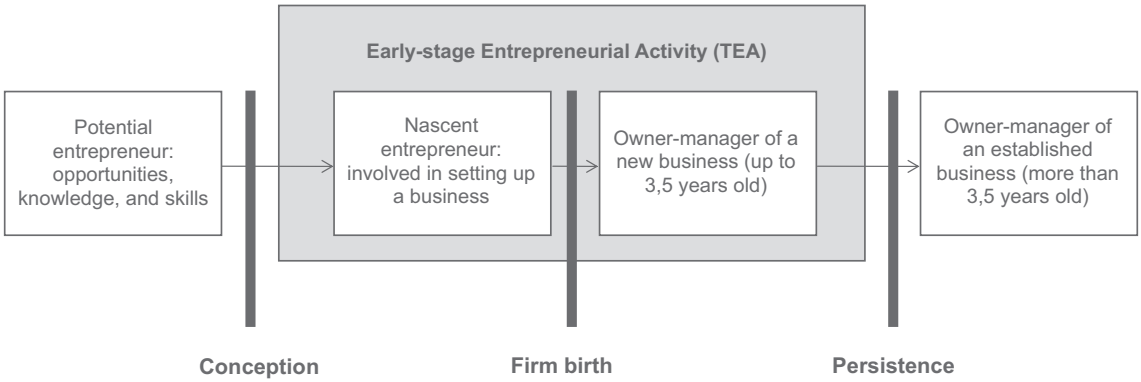
This illustrates that the business centres in this research are subgroups of incubators. They provide hosting to (in many cases young and growing) firms and provide management support. Many researchers have documented the role of incubators, be it taking a relatively descriptive and a-theoretical approach (Bollingtoft and Ulhoi, 2005). Bollingtoft and Ulhoi (2005) indicate that

“business incubator” is an umbrella term for any organization that provides access to affordable office space and shared administrative services (Allen and McCluskey, 1990; Fry, 1987). Over the years, business incubators have been marketed under a variety of more or less synonymous labels, including “business accelerators” (Barrow, 2001); “research parks” (Money, 1970), “science parks” (Martin, 1997), “knowledge parks” (Bugliarello, 1998), “seedbeds” (Felsenstein, 1994), “industrial parks” (Autio and Klofsten, 1998), “innovation centres” (Campbell, 1989), “Technopoles” (Castells and Hall, 1994) and “Networked Incubators” (Hansen et al., 2000). In what follows, we will use the term “business centres”, since it more specifically illustrates the subject of our research.

Business centres are firm friendly environments, usually buildings, which are created to offer physical spaces in the form of flexible offices; an array of support services which reduce starting costs (e.g. furniture, telephone systems, ICT); reduced monthly overhead and low flexible rents. As most instruments available to policy, business centres are not a new concept. They originated in the United States in 1959 in New York (Aerts et al., 2007). In Europe, one of the main examples has been the Handwerkhof in Munich, Germany. The building, five floors high, dates from 1967 and was resurrected to serve many crafts. In most economies, and in the past few years, these business centres have morphed from business accommodation facilities into local or regional development instruments. The concept of modern day business centres dates from the 1980s which were plagued by economic downturns.

Nowadays, business centres are created to stimulate the formation of new businesses and, through the mechanism of economic growth and employment generation, contribute to the local economy (Carree and Thurik, 2003). At the same time it is acknowledged that entrepreneurship is rather weak in the Belgian, and hence Flemish, economic landscape. This can be seen from the Global Entrepreneurship Monitor that sets out to measure entrepreneurial attitudes, activities and aspirations in 43 countries (Bosma et al., 2009). This measurement takes several indicators into account. Some of them probe into individual opinions on entrepreneurship such as the opportunities to start a firm; the fear of failure; the acquaintance with people that already set up a firm; the required knowledge and skills to start a firm and the expectation to start a firm in the near future. Other indicators cover the entrepreneurial attitudes of a country as perceived by individuals: how do people look upon a career as an entrepreneur and what media attention is given to entrepreneurship (Bosma et al., 2009). Since Belgium, and, therefore, the Flemish region, often ranks with the lowest countries when compared to its peers, the propensity to engage into entrepreneurship is relatively low. These aspects have placed the topic of business centres as a means to stimulate entrepreneurship high on the policy agenda of local and regional governments. These centres are widely acknowledged policy instruments in providing a nurturing environment for new business formation (Chan and Lau, 2005, Lyons and Li, 2003). Figure 2. shows the different phases in an entrepreneurial process.

Figure 2 Phases in the entrepreneurial process



Source: Bosma et al., 2009

The business centres are especially active in the phases between the conception and the persistence, i.e. in the early stage of entrepreneurial activity.
The common structure of business centres is that they are the result of private public partnerships. The public sector is represented through local or regional development agencies; the private sector is represented through the involvement of local lead companies and banks.

Even though these business centres have existed in Flanders for quite a while, little is known on the impact of these centres, be it in Flanders or elsewhere.
Two tendencies justify, however, a renewed interest in business centres. First, there is the evolution towards a knowledge based economy in which knowledge spillovers are increasingly important, necessitating social capital in general and networking activities in particular. Second, there is the tendency towards "globalisation" of business activities emphasising the interrelations between the local embedded firms in business centres and their relations with the outside world (Cabus and Vanhaverbeke, 2006). Because of the local and regional specificities in which the business centres operate, these roles of business centres differ according to different regions. Although business centres have been studied in the past, the recent dual roles they play in networking have not been empirically tested.

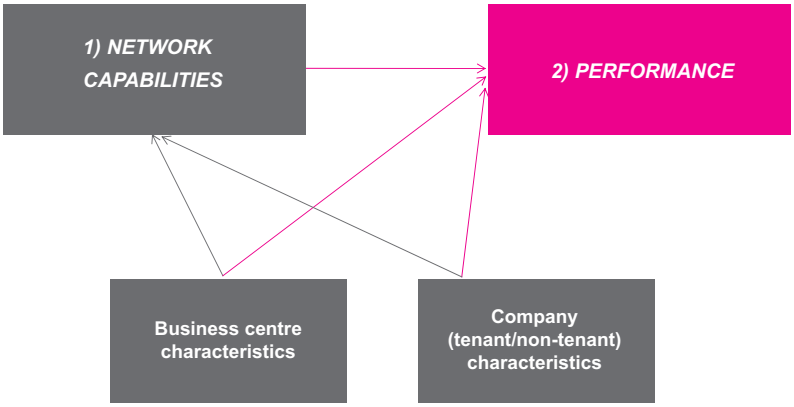
Even though it is recognized that one of the roles of business centres is the stimulation and nurturing of network development involving the tenants (Allen and McCluskey, 1990; Bollingtoft and Ulhoi, 2005), little is known about how effective this network stimulation is in relation to the tenants' performance. Given the importance of networks for a start-up company (Gulati, 1998; Anand and Khanna, 2000; Kale et al., 2002; Walter et al., 2006), this research aims at filling the gap in understanding of tenant performance and the role of business centres in network development, using the insights offered by social capital theory. Adler and Kwon (2002) define 'social capital' as the goodwill that is engendered by the fabric of social relations and that can be mobilised to facilitate action. The existence of social capital creates a nurturing environment by encouraging and strengthening social relations. Building on social capital theory offers a framework to focus on the importance of externalities stemming from sources from outside the tenant start-up company. These externalities are vital for its survival and growth, making the embedding in social relations an absolute must for start-ups. In this contribution we use the deliberate actions of start-ups to undertake networking activities as a proxy of social capital

(Teirlinck and Spithoven, 2005). This renders the existence of network relationships a central issue. These relationships are, then, related to the development and performance of start-up companies. As such, this research aims at providing insights in the following questions:
Do business centres help their tenants build network ties and capabilities, and if so, how?
Do tenants' networking activities affect the performance of these tenants and hence contribute to the local economy?

The first question will provide insight in the extent to which tenants of business centres have developed a higher level of network ties and capabilities compared to non-tenants. Besides, it will provide insight into how this higher level of network ties and capabilities originate, in case it occurs. As such, we want to understand whether the business centre is uniting those companies and CEOs that already have strong network ties and capabilities, or helps tenant companies to build these ties and capabilities. The second question will address the extent to which business centres affect local/regional economic development. By studying performance of tenants and non-tenants we will try to understand the role of business centres in generating employment and revenues.

The following figure illustrates the two questions that we handle in this report:

Figure 3 Research model



In what follows, we first discuss the sample, which was similar for both studies. Second, we present the results of each of the two studies. Finally, we conclude and reflect on the implications for practice and academia.

The data collection methodology consists of a four-stage[i] data collection process. All data were collected in Flanders, Belgium over the period 2008-2009. First, business centres were surveyed. Of the 92 business centres in Flanders, 36 provided us with information on their resources and activities. Other information collected contained information on the size and financing of the business centres. In a second stage, we asked these business centres to provide us with a list of their tenants. 24 business centres provided us with a list of their tenants. This resulted in a total sample of 252 tenants. These tenants and more specifically their CEOs were first contacted by e-mail and subsequently by telephone and were asked to fill out an online questionnaire. A total of 85 complete responses were received. Third, these tenants were matched on a one-by-one basis to non-tenants. The matched non-tenants had to reside in the same region (at district or NUTS 3 level), had to operate in the same sector (Nace-Bel classification), had to be in the same age and size (based on total assets) range as the tenants. 52 of the matched non-tenants agreed to participate in the survey. Fourth, the business centre's management filled out an additional questionnaire on the organization of networking activities, network capabilities and human capital.

Key figures (Vereertbrugghen and Knockaert, 2009) on the sample of business centres demonstrate that these are relatively small players in the local economy. On average, they have revenues of about 380,000 € (median 296,000 €) and an employment of 3.55 full time equivalents. The majority of business centres employ three or less persons. All business centres provide office space and some of them also offer storage space in which case the division is 50-50. On average the rental space of a business centre is 2,500 square meter. Even though firms in the Flemish region struggle for space, the current average occupation rate is 78%. Since firms are not supposed to initiate a prolonged stay in the centres, their turnover rate is assumed to be high. An average stay of tenants on a business centre is between three to four years.

As noted previously, business centres are created by public authorities and private stakeholders. The stakeholder ownership affects their mission. Earlier findings (Vereertbrugghen and Knockaert, 2009) reported that supporting growing firms; promoting entrepreneurship; stimulating the local economy; and creating employment are the most important missions of these centres. The choice of these missions can, at least partially, be explained by the fact that 80% of the business centres include a public shareholder. This makes these centres predominant examples of public-private partnerships. Only one fifth of the centres in the sample have exclusively private shareholders.

[i] The first 3 parts of the data were collected during a project on behalf of the "Steunpunt Ondernemen en Internationaal Ondernemen" of the Flemish Government.

3.1 Introduction

Many benefits have been attributed to locating on an incubator. Hackett and Dilts (2004)'s overview of business incubation research lists a number of potential benefits. Resident performance has been linked to the resident selection processes (Kuratko and LaFollette, 1987; Merrifield, 1987), internal incubator network formation (Lichtenstein, 1992), incubator-industry network and incubator support services network density (Hansen et al., 2000; Nowak and Grantham, 2000), incubator manager-tenant relationships (Autio and Klofsten, 1998; Rice, 2002; Sherman, 1999; Udell, 1990), incubator effectiveness (Sherman and Chappell, 1998), level of incubator development (Sherman and Chappel, 1998), and procedural standardization and policy formalization (Bearse, 1998). Incubators are seen as a politically attractive and widely accepted means to increase the chances of survival for new business ventures (Allen and McCluskey, 1990, Smilor and Gill, 1986; Bollingtoft and Ulhoi, 2005). However, few of the perceived benefits of incubator residence have been empirically tested (Hacket and Dilts, 2004).

Many studies have indicated that the role of network ties and capabilities for companies is not to be underestimated (Dyer and Singh, 1998; Anand and Khanna, 2000; Kale et al., 2002). From the perspective of a single firm, a network encompasses a set of relationships with various organizations that are connected with each other (Cook and Emerson, 1978) and may enhance the firm's value. Walter et al. (2006) found, studying a sample of university spin-offs, that network capability positively affected the spin-off's performance. Network capability is defined as a firm's ability to develop and utilize inter-organizational relationships (Walter et al., 2006).

For many companies, it is not always straightforward to build or acquire network ties and capabilities. One party that may specifically help companies in building network ties and capabilities are the business centres. The concept of "business centre" or "incubator" is often used as an overall denomination for organizations that constitute or create a supportive environment that is conducive to the "hatching" and development of new firms (Chan and Lau, 2005; Lindholm-Dahlstrand and Klofsten, 2002; Lyons and Li, 2003). Previous research on incubators has focused on the activities that incubators engage in (Mian, 1996; Brooks, 1986; Kuratko and Lafollette, 1987; Autio and Klofsten, 1998), incubator performance (Udell, 1990; Mian, 1996), the function of the incubator within the environment (Bollingtoft and Ulhoi, 2005) and the performance/survival of incubatees (e.g. Colombo and Delmastro, 2002; Stuaret and Abetti, 1987). As Hackett and Dilts (2004) highlight, little progress has been made towards understanding how incubatees develop. The current research into incubatees' development mainly looks at new venture success (e.g. Stuaret and Abetti, 1987), without however shedding light on the mechanisms through which incubators affect success.

Many authors have focused on the role of business centres and incubators for networks. However, few of the hypothesized relationships between business centres and value added have been tested empirically (Hackett and Dilts, 2004). The effects of business centres on networking of their tenants have been embedded in social capital/network theory. Commercialization usually occurs within an innovation community rather than a single organization (Lynn et al., 1996). Social capital theory rests on the premise that in addition to purely economics-driven contractual relationships, important

socially driven dimensions also need to be taken into account (Bollingtoft, 2005). Social capital can be seen as resources embedded in a particular social structure, while at the same time being made accessible and mobile by purposive actions (Lin, 2001). The importance of social capital has been emphasized by many authors (e.g. Mosey and Wright, 2007).

Previous studies have argued that entrepreneurs must move beyond their close, cohesive networks if they are to enjoy long-term success (Hite and Hesterly, 2001). Close relationships may enable entrepreneurs and their organizations to gather a variety of resources held by other actors (Walter et al., 2006). Walter et al. (2006) further argue that academics and managers have become increasingly interested in capabilities that enable firms to succeed in networks. Network capabilities are abilities to initiate, maintain and utilize relationships with various external partners. Walter et al. further define four dimensions of network capabilities: coordination, relational skills, market knowledge and internal communication. Coordination activities are those activities that connect the firm to its partners and also incorporate the predominant individual relations in a network. Relational or social skills relate to skills such as communication skills; conflict management skills; cooperativeness; extraversion etc. The structured and organised gathering of information on the upstream and downstream partners of the firm and its competitors is defined as partner knowledge. This information shapes the exchange routines and governance structures with partners. Internal communication points to the need to connect their external network internally in the firm. Network capabilities are found to be important direct predictors of company performance (Walter et al., 2006).

In what follows, we try to understand how and under which conditions business centres affect their tenants' network capabilities. Specifically, we focus on the role of business centres through both internal and external networking. The difference between both in a business centre context has first been made by Bollingtoft et al. (2005). They refer to internal networking as the networking that occurs among business centre tenants. External networking refers to the linkage of tenants to potential partners, customers, local business etc. However, before we discuss the business centre's role and the results of our analyses, we first elaborate on the methodology used.

3.2 Methodology

3.2.1 Model specification and validation

Several techniques were used to address our research questions.

First, in order to understand whether tenants have more network capabilities than non-tenants, we will use a Mann-Whitney U-test.

Second, we use an ordinary least squares regression analysis in order to model the determinants of network capabilities at tenant level. In this model, we take into account that some factors, which are beyond the scope of our research, might affect the model. This may for instance be the age of the venture, or the human capital of the management team (see for instance Mosey and Wright (2007) who link human to social capital). Therefore, we control for these variables. Second, we add all business centre related variables that may affect network capabilities. The equation then takes the following form:

*Network capabilities = F(controls, internal networking activities, external networking activities, network capabilities of the business centre's management, business centre size, network capabilities of the business centre's management*knowledge distance) (2)*

We elaborate on the selection of business centre characteristics in section 3.4.
The analysis is only carried out on the set of tenants. Given that non-tenants are left out, a potential selection bias problem may occur given that the likelihood of locating in a business centre may affect the model, and we therefore additionally used a Heckman two-step procedure (see, for example, Greene 2000: 926-937). Given that the results are very similar to the ordinary least squares (OLS) regression model, we report on the OLS model which is easier to interpret.

Further, we checked for risks of multicollinearity of the independent variables by calculating the variance inflation factors for each regression model. All variance inflation factors were below 3.0, indicating that multicollinearity is not an issue (Hair et al., 1998).

3.2.2 Operationalization

Dependent variable: network capabilities

We conceptualized network capabilities similar to the conceptualization by Walter et al. (2006). They define network capabilities as "a higher order construct that increases in magnitude as each of the four NC components increases". Coordination activities, relations skills, partner knowledge and internal communication are integral parts of the network capabilities construct. The table below provides insight in the items used to measure each dimension of network capabilities and some descriptives.

Table 3.1. Components and measurement of network capabilities for tenants

To what extent do the following statements apply to your organization regarding the form, care and use of relationships to partners (customers, suppliers, technology partners etc?) (1- statement does not apply at all, 7-statement applies completely)	Mean (s.d.)
Coordination (α=.91)	5.12 (1.49)
We analyze what we would like and desire to achieve with which partner	
We match the use of resources (e.g. personnel, finances) to the individual relationship	
We inform ourselves of our partners' goals, potentials and strategies	
We judge in advance which possible partners to talk to about building up relationships	
We appoint coordinators who are responsible for the relationships with our partners	
We discuss regularly with our partners how we can support each other in our success	
Relational skills (α=.90)	5.54 (1.22)
We have the ability to build good personal relationships with business partners	
We can put ourselves in our partners' position	
We can deal flexibly with our partners	
We almost always solve problems constructively with our partners	
Partner knowledge (α=.90)	5.33 (1.20)
We know our partners' markets	
We know our partners' products/procedures/services	
We know our partners' strengths and weaknesses	
We know our competitors' potentials and strategies	
Internal communication (α=.92)	5.09 (1.49)
In our organization, we have regular meetings for every project	
In our organization, employees develop informal contacts among themselves	
In our organization, communication is often across projects and subject areas	
In our organization, managers and employees do give intensive feedback on each other	
In our organization, information is often spontaneously exchanged	
Network capabilities (average of the NC component means) (α=.88)	5.23 (.96)

N=85

In what follows, we do not distinguish between the different components of network capabilities, but study network capabilities as a whole, employing the summated measure.

Independent variables

Business centre size. Was measured as the number of tenants on the business centre. The largest centre hosted 102 companies, whereas the smallest catered for 10 companies. Average number of tenants equalled 32 companies.

Internal networking activities. Was measured as the number of internal networking activities the business centre organized during the year 2008. We asked the business centre's management to indicate both the nature of the activities and the number. Typical internal networking activities include study days, receptions, recruitment events, breakfast sessions etc. On average, the business centres organized about 7 own and internal networking activities. One centre did not organize any internal networking activities, whereas the most active one organized 28 on a yearly basis. These activities are mainly open to the tenants.

External networking activities. Was measured as the number of external networking activities that the business centre organized, participated in or actively promoted to its tenants during the year 2008. On average, the business centres participated in or actively promoted 5 of these activities. Typical activities include activities (including training) organized by Unizo, Vlao and VOKA, which are local players aiming at the promotion of entrepreneurship and business. One centre did not organize or participate in any external networking activities (and indicated that this is caused by a lack of interest by the tenants), whereas the most active centre participated in 150 of those activities on a yearly basis.

Network capabilities of the business centre's management. These were measured in an identical way as the network capabilities at tenant level (see above). The average level of network capabilities equalled 5.18.

Human capital distance. We further added a variable to the model that allowed identifying the extent to which the networks of the tenant would be different from the business centre's management. In order to do so, we measured the difference in number of years experience between tenant's management team and business centre's management at R&D and commercial level, and therefore build further upon earlier established links between human and social capital (Mosey and Wright, 2007). These indices were summated, and provided an index of "human capital distance".

Control variables

The table below provides further insight in the control variables used. We further elaborate on the definitions used.

Table 3.2 Descriptive variables

Average (and standard deviation)	Tenant	Non-tenant
R&D experience (years)	10.87 (14.71)	10.67 (13.67)
Sector experience (years)	22.80 (21.71)	21.15 (17.23)
Commercial experience (years)	25.79 (23.16)	21.17 (17.10)
Firm age	10.51 (14.88)	11.40 (9.46)
N	85	52

R&D experience. Was measured as the total number of years of R&D experience by the tenant or non-tenant firm's management team.

Sector experience. Was measured as the total number of years of commercial experience by the tenant or non-tenant firm's management team.

Commercial experience. Was measured as the total number of years of commercial experience by the tenant or non-tenant firm's management.

Firm age. Was measured as the number of years the firm existed since founding (until 2008).

Firm performance. Was measured as a dummy variable, in which 0 indicated that the revenues over the past 3 years had decreased, and 1 indicated that the revenues over the past 3 years had increased. 58 of the tenants indicated that their revenues had increased over this period, whereas 27 indicated a decrease of the revenues.

3.3 Results: do network capabilities of tenants and non-tenants differ?

Little research has indicated that the network capabilities between tenants and non-tenants differ. The received literature on business centres and incubators however mentions business centres as crucial players in the network activities and social capital of their tenants (Allen and McCluskey, 1990; Bollingtoft and Ulhoi, 2005). As a starting point for this study, we therefore want to shed light on differences in network capabilities between business centre tenants and non-tenants.

Following the above discussion, we first want to shed light on the following question:

Do business centre tenants have stronger network capabilities than non-tenants?

In order to answer this question, we used a univariate test to understand whether or not tenants disposed over stronger network capabilities than non-tenants. The results are displayed in the table below.

Table 3.3 Differences in network capabilities between tenants and non-tenants

Average (and standard deviation)	Tenants	Non-tenants
Network capabilities*	5.23 (0.96)	4.88 (1.08)
	85	52

Mann-Whitney U-test, significant at p<.10

Tenants tend to have higher levels of network capabilities (5.23 on average) than non-tenants (4.88 on average). The results provide some evidence (at p<.10 level) that tenants dispose over stronger network capabilities than non-tenants. Observing higher levels of network capabilities with tenants over non-tenants however only is a first step. In what follows, we further analyze why and how business centre tenants have more network capabilities than the non-tenants. We distinguish between the role business centres play for internal and external networking.

3.4 How can we explain higher levels of network capabilities with tenants?

In what follows, we first reflect on the factors that could affect the network capabilities of tenants, both looking from an internal and external perspective. Next, we present the results of our analysis.

3.4.1 Internal networking- the role of characteristics and activities of the business centres

Bollingtoft et al. (2005) argue that networks are not 'given' but created by individuals and their social interactions with other individuals. A business centre can help to build social capital. The fact that all incubatees can operate under one roof makes collaboration more likely. In what follows, we try to understand which business centres' characteristics and activities could affect the network capabilities of its tenants.

Size of the business centre

A critical element for building social capital is size of the business centre. Bollingtoft et al. (2005) indicate that it is easier to get to know 20 tenants than 50. The number of tenants in the business centre seems to pose a potential barrier.

Therefore, we expect that ***business centres that accommodate more tenants to have tenants with weaker network capabilities.***

Internal networking activities

Bollingtoft et al. (2005) indicate that incubatees can use two kinds of networks: internal and external networks. Indeed, tenants tend to use incubators to facilitate relationships with other incubator residents on the one hand (Sherman and Chappell, 1998), and use the incubators to link with potential partners, customers, local business etc. on the other hand (Bollingtoft et al., 2005). All the joint activities at a business centre can help tenants to get to know each other (Bollingtoft et al., 2005). Therefore, we argue that ***the more internal networking activities organized by the business centre, the stronger network capabilities the tenant will dispose of.***

3.4.2 External networking- the role of business centres' activities and management

Business centres can furthermore help their tenants to build links with the environment. In what follows, we analyze whether the organization of network activities that link tenants to their environment, and the management's network capabilities help to strengthen the tenants' network capabilities.

External networking activities

One of the activities that business centres engage in is the development of networking activities that do not only involve tenants, but that bring together tenants and non-tenants. Similarly to internal networking activities, we propose that ***the more external networking activities organized by the business centre, the stronger network capabilities the tenant will dispose of.***

Network capabilities of the business centre's management

The extent to which tenants have the capabilities to link to their environment may be affected by the business centre's management. A capability is seen as a special type of resource that is organizationally embedded and non-transferable, and improves the efficiency and effectiveness of other resources possessed by the firm (Eisenhardt and Martin, 2000; Teece et al., 1997). External parties may however help to build these capabilities. One of these external parties can be the business centre, or, more specifically, the business centre management. The extent to which external parties can help to build capabilities will however be both dependent on the tenant and the business centre's management. Or, as Lane and Lubatkin (1998) put it, the ability of a firm to learn from another firm is jointly determined by the relative characteristics of the student firm and the teacher firm. Therefore, we may argue that there will be a direct relationship between the tenant's network capabilities and the business centre management network capabilities. This will however only be the case when the business centre management's human capital differs from that of the tenant, given the link between human and social capital (Mosey and Wright, 2007). In case of similar networks, the business centre can hardly add to the tenant's network or network capabilities. We therefore argue that ***stronger network capabilities at business centre management level will enhance network capabilities by the tenants, on the condition that the difference between their human capital is sufficiently large.***

3.4.3 Results on characteristics and activities of business centres

In what follows, we try to understand what determines the network capabilities of the tenants. We try to assess whether business centres simply attract the companies of which the management disposes of stronger network capabilities, or actively helps building network capabilities at network tenant level. In order to do so, we look at the characteristics and activities which we defined above, namely size of the business centre, the network activities it organizes, and the network capabilities of the business centre's management. The results of the OLS regression are presented below.

Table 3.4 Results of hierarchical OLS regression analysis

	Base model (controls only)	Full model
Dependent variable= network capabilities		
Independent variables		
Business centre size		0.56 (0.01)
Internal networking activities		0.02 (0.02)
External networking activities		-.19* (0.01)
Network capabilities of the business centre's management		-0.11 (0.20)
Network capabilities of the business centre's management * human capital distance		0.38*** (0.03)
Control variables		
R&D experience	0.18 (0.01)	0.04 (0.01)
Sector experience	0.31 (0.01)	0.30* (0.02)
Commercial experience	-0.14 (0.01)	-0.24 (0.03)
Age	-0.12 (0.01)	-0.09 (0.01)
Firm performance	0.26 (0.22)	0.24** (0.22)
Constant		4.51 (0.99)
F-statistic	2.65***	2.79***
Adjusted R^2	8.90%	17.6%

Levels of significance: *p<.10; **p<.05; ***p<.01; ****p<.001

The analysis provides a number of interesting insights. First, in the base model with only the control variables, it is clear that the performance of the company to a large extent determines network capabilities. This suggests that, in order for companies to engage in networking and to generate these capabilities, there has to be financial space, or "slack" (George, 2005). Even though the base model is significantly significant, the model becomes stronger in explaining network capabilities when business centre related variables are added. The adjusted R^2 goes up from 8.9% to 17.6%. In the full model, 17.6% of the variance is explained by the variables taken into account. Even though this illustrates that other factors may explain differences in network capabilities, the model has quite some explanatory power. The results first show that network capabilities by tenants do not seem to be affected by the size of the business centre. Second, we do not find that the number of internal networking activities significantly positively affects networking capabilities of the tenants. Neither do we find that the number of external networking activities affects the network capabilities of the

tenants in a positive way. On the contrary, we find that, when business centres organize or engage more in external network activities, this seems to deteriorate the network capabilities by the tenants. We do find that even though the network capabilities do not seem to directly affect the network capabilities of the tenants, they do in case the human capital of the business centre's management is to a larger extent different from the human capital of the tenant's management team.

Therefore, we can conclude that the characteristics of business centres and activities organized by the centres as such do not affect network capabilities of the tenants. We do find that the network capabilities of the business centre's management can positively affect the network capabilities of the tenants, on the condition that the human capital of business centre's management and the tenants is sufficiently dissimilar.

As such, we find some, but no overwhelming effects of business centres on their tenants' network capabilities. Even though we find that tenants have moderately higher levels of network capabilities than non-tenants, we find little evidence of business centre characteristics or activities explaining this effect. In the next section, we study the role of business centres for the local environment.

4.1 Local embedding

Public authorities, at various levels – municipal, provincial and regional – have taken steps to stimulate the development and growth of entrepreneurship. Evidence shows that an abundance of small entrepreneurial firms strongly correlates with economic growth (Glaeser, et al., 2009). One instrument to stimulate new business creation is the creation of a specialised environment that is conductive to business activities. In some cases (new) high tech enterprises are envisaged, respectively through incubators and science parks. Also spearhead initiatives aimed at creating local knowledge intensive centres, have been selected by the Flemish government to promote the deployment of knowledge based activities (e.g. IMEC, VIB). In spite of the rhetoric on this point, the economic structure of the Flemish region is still very much centred on traditional industries, especially from an employment perspective. Moreover, the increasing outsourcing of activities to India and China demonstrate that skilled workers are abundantly in supply and cheaper in those countries. Therefore, it is observed that a (potential) gap emerges between the traditional industries in which the majority of the Flemish workforce is active and some high tech structures put into place by policy initiatives. Business centres are more or less intended to bridge these two extremes.

Up to now, several (sub)regional stakeholders also promote initiatives that are directed to narrow (or even close) the identified gap. Regional development agencies (POMs), Chambers of Commerce (VOKA), and others, aim to stimulate entrepreneurship in more general ways by the instrument of the business centres. Here, not the highbrow technical activity is envisaged, but rather the barrier to start a business is lowered, by at the same time recognising that new businesses need to be open toward external sources.

The Flemish region is, nowadays, characterised as a knowledge based economy in which knowledge functions as a production factor. This increased reliance on knowledge also occurs in the traditional industries, e.g. textiles, for it is by being more knowledge intensive that firms, active in these traditional industries, can cope with the cheaper labour in low cost countries. Knowledge, however, is for a large part embodied in persons and flows through networks. In spite of the attention devoted to business centres, only a small number of studies have focused on the link between networking activities of tenants on business centres and their performances which is extraordinary given the focus of business centres as local employment initiatives. The business centres with high expectations to stimulate local growth are, therefore, the ones in which networking plays an extensive role (Hansen et al, 2000).

This chapter is organised as follows. The next section looks at theoretical background. Section three discusses the datasets used and focuses on the most salient characteristics of business centres. In this section we also present the variables used to look at the role of business centres. In section four we represent two models that are developed to track the impact of business centres. The first model looks at the probability for a firm to locate on a business centre. In a second stage we looked for the effects on the performance in terms of employment and revenues. We also look at some alternative financial performance measures from other databases. The conclusions are, together with those of the previous chapter, formulated separately.

4.2 Literature review and theoretical background

The importance of entrepreneurial activity has been appreciated since the writings of Joseph Schumpeter (1942). This entrepreneurial activity is stimulated by the provision of business centres integrating financial, advisory and infrastructure services. To nurture new business formation it was deemed necessary to create specialised environments that accounted for the strengths of the local economy (Hoy et al., 1991). These local benefits of business centres stem from their support in growth of nascent industries; the creation of new jobs, and also as a means to reduce the brain drain in depressed areas (Brown et al., 1995; Pleschak, 1997). Business centres enhance the probability of new small firms to survive by offering an array of basic services that have beneficial effects on their growth (Sherrod, 1999). Research demonstrated that businesses that originated in specialised business centres have better performance indicators – such as revenues, employment, net profits, net value – than firms that have not (Mian, 1996; Frenkel, 2008). Businesses in supported environments are found to have higher survival rates (Hannon and Chaplin, 2003).

Networking activities in business centres cover two complementary roles. First, business centres are created by the stakeholders to enhance local growth engines or cluster-type growth coalitions. In an era of globalization, the local environment is said to be a key ingredient in economic policy (Cooke, 2005; Florida, 2005). Second, business centres offer an array of support activities to their tenant firms including network possibilities.

Two tendencies justify, however, a renewed interest in business centres. First, the evolution towards an economy in which knowledge externalities are increasingly important, necessitates the development of social capital of firms and relies on networking activities. Since networking activities are one of the activities offered by business centres their study is warranted. Also, the tendency of internationalisation rests on the interrelations between local embedded firms and the outside world. Again the business centres are one particular infrastructural element that functions as an environment conductive to these interrelations. Because of the local and regional specificities in which the business centres operate, these roles of business centres differ according to different regions. Although business centres have been studied in the past, these recent dual roles they play in networking have hardly been empirically tested.

Even though it is recognised that one of the roles of business centres is the stimulation and nurturing of network development involving tenants (Bollingtoft and Ulhoi, 2005), not much is known on the effectiveness of this network stimulation in relation to the tenants' performance. Given the importance of networks for small firms (Kale et al., 2002; Walter et al., 2006), this research aims at filling the gap in understanding tenant performance and the role of business centres in network development, using the insights offered by social capital theory. Adler and Kwon (2002) define 'social capital' as the goodwill that is engendered by the fabric of social relations and that can be mobilised to facilitate action. The existence of social capital creates a nurturing environment by encouraging and strengthening social relations. Building on social capital theory offers a framework to focus on the importance of externalities stemming from sources from outside the tenant start-up company. These externalities are vital for its survival and growth, making the embedding in social relations an absolute must for start-ups. In this contribution we use the deliberate actions of start-ups to undertake networking activities as a proxy of social capital (Teirlinck and Spithoven, 2005; Kaufman

and Schwartz, 2008). This renders the existence of network relationships a central issue. These relationships are, then, related to the development and performance of start-up companies.

In a network economy the entrepreneurial logic is determined by replacing internal economies of scale by external economic benefits. Externalities stem from economies of agglomeration and economies of networking (Cabus and Vanhaverbeke, 2006). A developed network economy implies a growing number of relations between businesses. These relations are influenced by the proximity of the economic actors involved. The resulting reduction of transaction costs is frequently cited as a major driver behind the maintenance of network relations.

Van Dinteren et al. (1994) demonstrate that economies of agglomeration are especially relevant in the case of business services. The geographical proximity and economic benefits are a precondition for offering highly specialised services. Illeris (1994) maintains that face-to-face contacts are very important in the case of technical assistance such as juridical advice, software services, accountants, etc., because of the simultaneous presence of all this expertise. This is precisely the case in business centres.

Disillusionment with large companies and the lack of opportunities for attracting inward investment has given prominence to an endogenous development approach in local and regional development. Local authorities respond to the mounting social and economic pressures against the background of fiscal restraint and generally non-interventionist policies. Part of the local policies to attract or stimulate entrepreneurial activities can be found in certain initiatives that are used in the Flemish region or the existence of services offered by organisations created to stimulate entrepreneurship. These initiatives cover the use of ‘godfather’ coaching (PLATO, UNIZO-entrepreneurship coach); other initiatives of employers (VOKA) or independent (UNIZO) organisations; sector federations; Flemish agency of entrepreneurs (VLAO); and other local initiatives.

4.3 Data description

Even though the public sector is involved in providing favourable framework conditions that stimulate new business formation, business centres in the Flemish region are not limited to the public domain. In total 102 business centres where identified by the Flemish administration and 39 of them received subsidies (Vereertbrugghen and Knockaert, 2009). In the Flemish region a special programme is active consisting of 28 public business centres initiatives. Both public and private business centres pass in review in this study because their function vis-à-vis the presumed benefit for the local economy is the same.

4.3.1 Location of business centres and regional entrepreneurial activity

Drawing on the list of business centres that have filled out the questionnaire, we have asked them to provide a list with tenants. Hence we focus on the 24 business centres that cooperated. Table 4.1. gives an idea of the spatial distribution of these business centres and their representativeness.

Table 4.1 Location of business centres and regional entrepreneurial activity

	Provinces in the Flemish region					Total
	Antwerpen	Limburg	Oost-Vlaanderen	Vlaams-Brabant	West-Vlaanderen	
Business centres sampled	9	1	5	3	6	24
Share of business sampled – in %	37.5%	4.2%	20.8%	12.5%	25.0%	100.0%
Active enterprises in 2005	114,617	54,219	99,639	68,698	95,117	432,290
Share of number of enterprises – in %	26.5%	12.5%	23.0%	15.9%	22.0%	100.0%
Ratio of creation of enterprises – in %	8.9%	9.0%	8.0%	8.2%	7.4%	
Ratio of fall out of enterprises – in %	6.4%	6.5%	6.6%	6.2%	5.6%	
Net growth ratio – in %	2.5%	2.5%	1.4%	2.0%	1.8%	
Turbulence in %	15.3%	15.5%	14.6%	14.5%	13.1%	

Source: Flemish Administration Statistical Planning (APS)

Notes: ratio of creation = (created enterprises/active enterprises)*100; ratio of fall out = (fall out enterprises/active enterprises)*100; net growth ratio = ((created – fall out)/active enterprises)*100; turbulence = ((created + fall out)/active enterprises)*100

The majority of the business centres are in the urban areas with substantial economic activity. In some cases, e.g. in Sint-Pieters-Leeuw in Vlaams-Brabant, the business centre was created in answer to the delocalisation of a large manufacturing firm (see website “BC Zennevallei”).
The ranking of the shares of business centres does not differ much from these of the active enterprises: the province with most entrepreneurial activity, Antwerpen, also has the largest share of business centres. The same holds for the province Limburg: they consistently show the weakest shares of entrepreneurial activity. It has to be acknowledged that the shares differ substantially, and

that the results are to be used as exploratory insights. The rows on creation, fall out, net growth and turbulence are indicators on the dynamic aspects of entrepreneurial activity. Here is can be seen that Limburg is, in 2005, somewhat catching up with other regions. West-Vlaanderen, on the other hand, is falling behind in this respect.

4.3.2 Types and key characteristics of business centres

There is considerable variety and diversity in business centres because they represent a response to a number of problems and opportunities. As stated, business centres are generally projects that are thought to promote enterprise creation and contribute to their development. But in some cases these business centres are directed to specific business sectors, such as design or new technology. They also might be created in industrial closure areas in an attempt to generate alternative employment. Other business centres have been motivated by the desire to re-use old and redundant buildings or to promote innovatory forms of management and co-operation between tenant businesses. Hence different types of business centres exist. Two main types are the ones that are focused on small firms and start-ups. Other types involve some specialisation and include the following: seed-bed business centres; innovation centres; technology centres; design studios (De Winkelhaak) etc.
The overall idea is that business centres offer a variety of services and facilities (Aerts et al., 2007). These are property services (furniture; cleaning heating; lighting; security; waste disposal etc.); office services (reception; secretarial services; ICT-facilities etc.); business services (accountancy; counselling etc.); and communal services (conference rooms; restaurant or canteen; exhibition areas etc.). Most of these services are provided by the management of the business centre, but some of them (e.g. restaurant or book-keeping) are left to a tenant firm. Of course there are differences between the centres as to their method of charging for these services. Some elements, such as property services or basic office services, are included in the rent. Other services are charged according to the use made of them.
Especially business services are related to networking and relational exchanges (Bennett and Robson, 1999). The centre-advisor and the tenant-client need to be engaged in close information exchanges, which are facilitated by the proximity within the centre.

4.3.3 Measures and methods

Dependent variables

Two related variables capture the performance of firms: the evolution in employment and revenues. The respondents are asked to categorise the development of these variables in the past three years: decreased, stabilised or increased. Hence some of our dependent variables are ordered categories. Location on or off a business centre was measured as a dummy (0/1) variable.

Control variables

Five control variables are taken into consideration because they are suggested by the literature: the age of the firm as a proxy for the experience to form network relations (Bennett and Robson, 1999; Kaufman and Schwartz, 2008); the group membership which is an ‘internal’ network with the parent/daughter (Cabus and Vanhaverbeke, 2006; Kaufman and Schwartz, 2008); the fact that a firm actively engages in (regional) initiatives directed to fostering entrepreneurship or networking (Bennett

and Robson, 1999; McEvily and Marcus, 2005; Engstrand and Ahlander, 2008); the location of the firm in a business centre; the existence of R&D activities (Bunnell and Coe, 2001; Kaufman and Schwartz, 2008); and the size of the firm in terms of employment (Kaufman and Schwartz, 2008; Glaeser et al., 2009).

Network variables

The first set of network activities that make up social capital consist of four components: coordination activities, relations skills, partner knowledge, and internal communication (Walter et al., 2006). Coordination activities are those activities that connect the firm to its partners and also incorporate the predominant individual relations in a network. Relational or social skills relate to skills such as communication skills; conflict management skills; cooperativeness; extraversion etc. The structured and organised gathering of information on the upstream and downstream partners of the firm and its competitors is defined as partner knowledge. This information shapes the exchange routines and governance structures with partners. Internal communication points to the need to connect their external network internally in the firm. Assimilating and disseminating updated information on partners to the relevant departments in the firm helps to stimulate efficiency by avoiding duplication of processes and to benefit from learning within partnerships.

The second set of network variables is related to the fact that learning from connecting to other firms is also an important aim of networking (Wynarczyk and Raine, 2005; Walter et al., 2006). Three different aspects pass in review (McEvily and Marcus, 2005): the application of existing methods; the sourcing of new ideas; and the amelioration of their methods. To look at the location of their partners that make up the network we asked the firms if their partners are local, regional, national or international (OECD, 2005). But since, in a small region like the Flemish region, these notions are somewhat forced, we also asked the location of their partners in terms of the physical distance in kilometres (Cabus and Vanhaverbeke, 2006).

4.4 Results and analysis

In the first model the performance indicators are the growth in employment and revenues. Table 4.2. considers four ordered logit models. In it, the changes of employment and revenues are related to several variables that are supposed to have an impact on them. We use an ordered logit regression because the dependent variable results from a classification by the respondents of firms is their employment and revenues had decreased, stabilised or increased in the past three years (Bennett and Robson, 1999).

Table 4.2 Impacts on employment and revenue dynamics

Dependent variable	Employment change		Change in revenues	
	Base model (i)	Networking (ii)	Base model (iii)	Networking (iv)
Business centres tenant	0.807	0.601	0.242	-0.266
	(0.406)**	(0.518)	(0.466)	(0.595)
Age of firm	-0.057	-0.052	-0.042	-0.051
	(0.021)***	(0.030)*	(0.020)**	(0.030)*
Size of firm	2.949	2.640	1.812	2.394
	(0.703)***	(0.800)***	(0.786)**	(1.120)**
Group membership	-0.152	-0.599	-0.386	-0.983
	(0.702)	(0.841)	(0.588)	(0.748)
Initiatives/Associations	1.433	1.389	0.620	.0671
	(0.437)***	(0.575)**	(0.473)	0.590
Coordination		-0.349		0.016
		(0.364)		(0.309)
Relational skills		0.355		0.567
		(0.274)		(0.282)**
Partner knowledge		-0.011		0.039
		(0.301)		(0.301)
Internal communication		0.428		0.095
		(0.191)**		(0.234)
Observations	105	81	102	78
Wald statistic	36.69***	50.57***	7.89	17.61**
McFadden R^2	17.67	24.47	5.92	15.51

Notes: Robust standard errors are in brackets; *,**,*** denote statistical significance at 10%, 5% and 1%. Tests whether business centre tenants interacted with networking activities provided no significant results.

From model (i) in the table it follows that, apart from group membership, all control variables are statistical significant in affecting the change in employment. First of all, firms located in a business centre have experienced a significantly higher evolution in their employment. If the firm is young this impact on the change in employment is negative, suggesting that young tenant firms contribute less than large non-tenant firms to employment change. As the size of the firms is positively related to the change in employment it is found that smaller firms are contributing less to the local employment dynamics than larger firms. Using the entrepreneurial initiatives by the public or private sector or being involved with associations affects employment change positively.

The independent variables that consider the networking activities of these firms are shown in model (ii) with respect to their impact on the change in firm-level employment. With respect to the control variables we see that some of their effects have been reduced (age and initiatives/associations), but that the effect of being located in a business centre disappears. The aspect of networking that has taken over the influence on the change in employment is the aspect covering the internal communication. Assimilation and dissemination of the information on partners within the firm is shown to be statistically significant.

In the case of the change in revenues, in model (iii), the picture is somewhat altered in comparison to the ones in model (i). The impact of belonging to a group remains indifferent. Location in business centres or entrepreneurial initiatives have no longer any impact on the change in revenues. The size of the firms still influences the revenues positively: larger firms have more growth than smaller firms. The variable on age shows that older firms have a positive impact on the change of revenues, although its significance is reduced somewhat.

Including the set of network activities, in model (iv), demonstrates that the relational skills are important when it comes to stimulate a positive change in revenues: communication skills, empathy and extraversion are beneficial characteristics to enhance revenues. The fact of being located in a business centre has no impact (and, although insignificant, the estimate is even negative).

Summarised, using an ordered logit regression, the impact of being on a business centre proved positive in the case of employment measure, but did not yield significant results in the case of revenues. Also the size of the firms, and the fact that they participated to initiatives related to external networking led to positive employment effects (again the impact on revenues proved insignificant). Bringing in the aspects of networking capabilities, as prescribed by Walter et al. (2006), it was shown that internal communication yielded a positive impact in the case of employment; whereas this positive impact was restricted to relational skills in the case of revenues.

The second model looks at the probability for a firm to locate on a business centre. Table 4.3. gives an overview of the elements that are relevant for firms to be located in a business centre. This time the dependent variable states whether firms are located in a business centre or not. This binary variable implies that a probit regression is the appropriate econometric technique. Four models are considered. Again we focus on the role of the dynamics in terms of employment and revenues. To evaluate the impact of networking activities in a broad sense, we first consider a base model with all the control variables and second include the elements that pertain to networking. Networking activities that make up social capital consist of four components: coordination activities, relations skills, partner knowledge, and internal communication (Walter et al., 2006). Table 4.3. summarises the estimates of the four models.

Table 4.3 Impacts of business centre location – probit regression results

	Business centre location (yes/no)			
Dependent variable	Employment change		Revenue change	
	Base model (v)	Networking (vi)	Base model (vii)	Networking (viii)
Employment change	0.343	0.291		
	(0.211)	(0.255)		
Revenue change			0.170	-0.005
			(0.208)	(0.262)
Age	0.003	0.006	-0.000	0.002
	(0.015)	(0.017)	(0.015)	(0.017)
Size	-0.981	-0.941	-0.807	-0.724
	(0.377)***	(0.424)**	(0.360)**	(0.409)*
Group membership	0.784	0.715	0.680	0.643
	(0.374)**	(0.448)	(0.377)*	(0.434)
R&D activities	0.229	0.287	0.220	0.280
	(0.092)**	(0.121)**	(0.092)**	(0.126)**
Learning from other firms				
* Application of methods		0.741		0.793
		(0.209)***		(0.217)***
* Ideas on new methods		-0.030		-0.155
		(0.153)		(0.168)
* Amelioration of methods		-0.605		-0.504
		(0.186)***		(0.188)***
Partner location				
* Distance (in area type)		-0.446		-0.500
		(0.332)		(0.332)
* Distance (in km)		0.606		0.649
		(0.286)**		(0.291)**
Constant	-1.191	-2.030	-0.779	-1.391
	(0.540)**	(0.999)**	(0.569)	(1.048)
Observations	99	87	96	84
Wald statistic	17.11***	32.09***	13.38**	29.17***
McFadden R^2	12.06	26.58	9.73	25.47

Note: Robust standard errors in brackets

Model (v) looks at the impact of employment change and other control variables on the probability to locate in a business centre. We find that smaller firms often look for locations in business centres. The fact that group membership is also statistical significant indicates that many firms in business centres are not independent entities, but belong to Flemish, Belgian and international groups. If the tenants are firms stemming from international groups, this finding is somewhat at odds with the argument that business centres stimulate or reinforce local or regional endogenous growth. However, we have no additional information on the location of the parent group. It might be that business centres attract tenant subsidiaries – and stimulate employment, revenues and hence growth potential – for other

reasons such as the presence of a local or regional knowledge base. This hypothesis contradicts with the finding that firms that are active in business centres are active in R&D, pointing to the fact that these smaller firms are directed to more innovative activities. But it takes time for these kinds of firms to launch a product that sells in the market.

By including networking activities, the control variables in model (vi) only change with respect to group membership. The variables capturing network aspects: learning and location of partners show some significant elements. The probability of being located in a business centre is higher in the case a firm learns how to apply methods used by other firms. Where these 'teacher' firms are located is unclear, but since the impact of group membership disappears it is suggested that these 'teacher' firms are part of the group. The amelioration of methods, on the other hand, shows a negative impact on probability to be located in a business centre. The distance of the partners in kilometres has a significantly positive impact on the probability of being located in a business centre: firms that choose for a business centre location often have partners that are located further away. In conjunction with the disappearance of the significance of group membership this might imply that business centres often act as local hubs for multilocational or multinational groups. The finding is, however, in line with the insights on the network economy as a hub-and-spoke type of territorial organisation (Cabus and Vanhaverbeke, 2006). With respect of the change in revenues that is considered in model (vii) and model (viii) there are no real differences with employment, apart from the statistical strength of the estimates.

Using a probit regression model, we find that especially small R&D active firms belonging to a group opt for such a location. Since R&D activities require firms to develop networking capabilities, the choice for a business centre might be beneficial to them. Firms in business centres are typically said to be start-ups, yet the variable on age did not support this. This implies that they have to be open or learn from others (McEvily and Marcus, 2005). Hence we also screened for elements of vicarious learning and found that firms are open to learn from similar companies. This is measured by looking at three aspects: (i) are tenants learning from the ways in which other firms work?; (ii) do tenants get their ideas about new methods of working from other firms?; do tenants improve their methods by observing other companies (McEvily and Marcus, 2005)?

Overall these findings lend some support to the view that business centres can play a facilitating role in networks relations for tenants. It was demonstrated that network relations are made up of different aspects and these have different impacts on performance measures. The implication is that local and regional policy makers have to take these aspects into account when setting up or assessing the role of business centres. But, in our view, the evidence is still far from convincing. This is also the case in other research on the topic (Kaufmann and Schwartz, 2008).

Table 4.4., finally, looks at two elements of alternative financial performance measures of firms: the level of the indicator and the dynamics of this indicator. To look at whether the business centres offer assistance for firms in terms of their performance several relevant financial statements are considered. These financial statements are drawn, for the sample of selected firms, from the BELfirst database for the period 1997-2007. Four different performance measures are used (Walter et al., 2006): total assets (TA); net added value (NAV); cash flow (CF) and profit and loss statements (PL). Total assets (TA) are an indicator of the resources available to a firm. These include current assets (e.g. liquidity) and fixed assets (e.g. equipment). The net added value (NAV) offers a structural approach

to determine the contribution that firms make to the community in which it operates. The definition of net added value is based on its assets minus its liabilities (e.g. depreciation). The added value of a firm, therefore, represents the wealth produced during the fiscal year, which can be determined as the difference between gross product and the goods and services consumed. The cash flow (CF) of a firm shows the amount of cash generated and used by a firm in a given period. It is calculated by adding non-cash charges (such as depreciation) to net income after taxes. Cash flow is be used as an indication of a firm's financial strength. Profit and loss (PL) statements summarise the revenues, costs and expenses incurred during a fiscal year. These statements provide information on the ability of a firm to generate profit by increasing revenue and reducing costs. The performance of the firms that are located in a business centres are contrasted to those outside such a centre in order to appreciate the impact of the business centre and their services. All performance measures are summarised in the following table.

Table 4.4 Performance measures of firms in and outside business centres

	Located in a business centre		Not located in a business centre	
Performance	Average in recent year (in 1000 €)	Average growth rate (in %)	Average in recent year (in 1000 €)	Average growth rate (in %)
Total assets	1639 (65)	2.52 (65)	2908 (44)	4.05 (44)
Net added value	867 (65)	0.19 (65)	564 (44)	-0.54 (44)
Cash flow	247 (64)	-1.04 (63)	-122 (43)	2.86 (43)
Profit & loss	61 (65)	-0.65 (62)	-188 (48)	-0.39 (44)

Notes: The number of observations is in brackets; the growth rates are calculated using available data for a 10 year period from 1997-2007 unless the firm was created after 1997 or went bankrupt, merged or acquired before 2007 in which case only the relevant years were used.
Note: Statistical tests on the difference between in or out a business centres proved only significant in the case of the growth rate of cash flow. All other performance measures are statistical indifferent if the firm is located in or outside a business centre.

Firms active in business centres are, in terms of total assets, on average, smaller than those that are not using business centres to be located in. Even though the difference is statistically not significant, it points to the fact that firms not located in business centres have higher assets because they often own the buildings they are located in, which raises the value of their total assets. Firms located in a business centre perform, on average, better than firms not located on them: they have higher net added value, cash flow and make profits. The picture is slightly more ambiguous when the growth rates of these performance variables are considered. Firms in business centres have higher growth rates in the case of net added value. This indicator could be used to state that business centres are effectively stimulating the local economy. But the lower growth rates in the case of cash flow and profit & loss might point to the fact that firms are less dynamic after an initial period. Cash flow levels indicate that firms located in a centre are financially stronger; this strength is gradually decreasing with age. The data on profit & loss show that firms in a centre are successful in benefitting from the reduced costs in business centres, but this benefit also diminishes as time goes by. Nevertheless, the fact that start-ups make a profit is rather exceptional as it is (Fritsch and Schroeter, 2009). Indeed, the business failure rate among (innovative) new formed businesses is usually quite high (Aerts et al., 2007) and the centres might be tempted to select those businesses with above survival rates.

This research set off to understand whether business centres are bringing together firms with stronger network capabilities or are helping in building network capabilities at tenant firm level. First, our results show that tenants have stronger network capabilities than non-tenants. Our results however remain modest at understanding what the role of the business centres in building these network capabilities is. The characteristics of business centres as such, or the activities it organizes or engages in do not tend to help in building these capabilities. This was the case for business centre size and external and internal networking capabilities. There may be several explanations for this. First, it may be that not the number of companies on the business centre contributes to network capabilities, but certain characteristics of these companies, such as the industry they are in, or their size. Alternatively, it may be that business centre's characteristics and activities contribute to tenant performance or behaviour, and has some value added (which has been concluded by previous, qualitative research, see for instance Bollingtoft et al., 2005), but is not reflected in network capabilities as such. Or it may be that activities organized by business centres as such do not contribute to networking capabilities unless the tenants actively participate in these activities. However, we do not dispose of information to assess whether any of these alternatives occur. Further research should therefore take into account not only the network activities organized but also the extent to which each participant participated in specific activities. We do however find that the business centre's management affects the network capabilities of their tenants. This effect mainly occurs when the knowledge base of the tenant is different from that of the business centre's management. This is indicating a relatively high level of engagement of the business centre's management in the tenant companies (see Autio en Klofsten, 1998; Rice, 2002; Sherman, 1999; Udell, 1990). It further calls for more attention for understanding how business centre's management should optimally be built in order to improve network capabilities, which are important for venture success of tenants. It indicates that higher levels of network capabilities at business centre management level should be welcomed, especially when combined with human capital distinct from that of the tenants. For instance, business centre managers with high levels of commercial experience tend to help tenants with lower levels of commercial experience in building network capabilities.

To the question if business centres contribute to the local economy, no clear answer is possible when we look at our results. First, the centres, and especially the critical mass of young and small tenants in these centres, are far too small to exert a significant impact on the local or regional economy. When business centres are publicly funded, it can reasonably be expected that they are created to foster impulses for an innovative process which has to be sustained by complementary policy instruments. Creating a centre can initiate local economic cooperation between local authorities, financial institutions, universities, and private enterprises. In this case centres introduce market led aspects in economic policy; which differs from the subsidy orientated policy instruments that are often used by local or regional agents. Second, because our data are cross sectional in nature, we have no information on the performance of firms after they have left the business centre. Apart from longitudinal data series, the research on the impact of business centres might be helped by selecting several case studies to highlight the idiosyncratic development paths of firms in business centres. In the case of the contribution of business centres to the local economy, it has to be acknowledged that the existence of business centres will not solve all problems of economic downturns and eradicate local unemployment.

The management of business centres struggles with a dilemma. On the one hand they face a role as landlord having to deal fiercely with the tenants as the stakeholders or sponsors of these centres are public authorities, private industries, universities, regional development agencies, which all have their goals that are not necessarily in line with each other. On the other hand, the managers act as advisors helping the tenant in every way they can. This dilemma renders clear management perspectives difficult and troubles the applicability of selecting the indicators that can measure the success rate of these centres.

Based on the literature, we can state that networking is a complex process. Nascent entrepreneurs already lack important managerial and business experience. Hence the business centre is potentially an important public support instrument in supplying the framework in which networking can take root. This is especially the case for firms in which the entrepreneur lacks experience and when firms are active in economic activities where the level of cooperation is weak.

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ISBN-NUMMER : 9789078858515
D/2009/11.885.17